

ABSTRACT

Disclosed herein are methods for generating recombinant DNA molecules in cells using homologous recombination mediated by recombinases and similar proteins. The methods promote high efficiency homologous recombination in bacterial cells, and in eukaryotic cells such as mammalian cells. The methods are useful for cloning, the generation of transgenic and knockout animals, and gene replacement. The methods are also useful for subcloning large DNA fragments without the need for restriction enzymes. The methods are also useful for repairing single or multiple base mutations to wild type or creating specific mutations in the genome. Also disclosed are bacterial strains and vectors which are useful for high-efficiency homologous recombination.